**CLAIMS**

1. A method of fabricating a suspended microstructure with a sloped support, comprising the steps of:

(a) providing a member having three stacked up layers including a first substrate layer, a second temporary layer and a third photoresist layer;

(b) photolithographically transferring a sloped pattern to the third photoresist layer by means of a grey scale mask;

(c) etching the second layer through the third layer resulting from step (b) to obtain a surface with at least one continuous slope with a predetermined angle with respect to the first surface layer;

(d) depositing a fourth layer on the previous layers;

(e) etching the fourth layer to obtain the sloped support; and

(f) removing the second layer to obtain the microstructure with the sloped support.

2. A method according to claim 1, wherein:

the etching of step (c) is performed in such a way that the surface that is obtained includes a plateau with two opposite continuous slopes each having a predetermined angle with respect to the first substrate layer.

3. A method according to claim 2, wherein the predetermined angles are substantially equal.

4. A method according to claim 1, further comprising, after step (e) and before step (f), steps of:

(i) depositing a fifth planarization layer for covering the previous layers except for a top portion of the sloped support;

(ii) depositing a sixth layer on the previous layers; and

(iii) etching the sixth layer to obtain a microplatform;

wherein step (f) further includes a removal of the fifth layer.

5. A method according to claim 1, wherein the depositing of step (d) is performed by means of a plasma-enhanced chemical vapor deposition technique.

6. A method according to claim 1, wherein the removing of step (f) is performed by means of a plasma isotropic etching technique or a wet etching technique.

7. A method according to claim 4, wherein the removal of the fifth layer is performed by means of a plasma isotropic etching technique or a wet etching technique.

8. A method according to claim 1, wherein the fourth layer of step (d) is made of a material selected from the group including $SiO_2$, $Si_3N_4$, Ti, Al, V, Au and Si.

9. A method according to claim 1, wherein the depositing of step (d) is performed by means of a technique selected from the group including sputtering technique, resistive evaporation technique and electroplating technique.

10. A method according to claim 1, wherein the etching of step (c) or (e) is performed by means of a reactive ion etching technique or a wet etching technique.

11. A method according to claim 4, wherein the depositing of step (ii) is performed by means of a plasma-enhanced chemical vapor deposition technique.

12. A method according to claim 1, wherein the second temporary layer of step (a) is made of a polymer or made of glass.

13. A method according to claim 12, wherein the polymer is polyimide.

14. A method according to claim 4, wherein the fifth planarization layer of step (i) is made of a polymer or made of glass.

15. A methode according to claim 14, wherein the polymer is polyimide.

16. A method according to claim 4, wherein the sixth layer of step (ii) is made of a material selected from the group including $SiO_2$, $Si_3N_4$, Ti, Al, V, Au and Si.

17. A method according to claim 4, wherein the depositing of step (ii) is performed by means of a technique selected from the group including sputtering technique, resistive evaporation technique and electroplating technique.

18. A method according to claim 4, wherein the etching of step (iii) is performed by means of a reactive ion etching technique or a wet etching technique.

19. A suspended microstructure with a sloped support produced by the method of anyone of the claims 1 to 18.